

Remarks:

These remarks are responsive to the Office action dated February 20, 2008. Prior to entry of this response, claims 1-14 were pending in the application. By way of this response, claims 1 and 2 are amended, claims 3 and 8-14 are cancelled, and claims 17-19 are added. Applicants respectfully request reconsideration of the application and allowance of the pending claims.

Rejections under 35 U.S.C. § 102

Claims 1 and 3-6 are rejected under 35 U.S.C. 102(b) as being anticipated by 6,345,498 (Yonekura et al).

Rejections under 35 U.S.C. § 103

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over 6,345,468 (Yonekura et al.) in view of 6,619,032 (Kakuyama et al.).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over 6,345,468 (Yonekura et al.) in view of 5,970,707 (Sawada et al.).

Claims 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over 6,345,468 (Yonekura et al) in view of 5,970,707 (Sawada et al.) and 6,619,032 (Kakuyama et al.).

Before discussing the above issues in detail, Applicants believe some background information may be useful. As described in Applicants' specification, both temperature and oxygen storage capacity affect the NOx purging cycle, and in particular, both affect how NOx is released. As such, Applicants describe selecting the rich air-fuel ratio (used to purge the stored NOx) as a function of oxygen storage capacity and temperature. In particular, Applicants have recognized that at lower temperatures, the oxygen storage has a smaller relative effect on the NOx release than at higher temperatures. As such, the rich air-fuel ratio is controlled to take this effect into account and more accurately provide the required amount of reductant for the released NOx.

See Applicants' specification at page 2, line 16 to page 3, line 2, as well as page 4, line 17 to page 5, line 2; FIG. 3 and the description at page 9, line 9 to page 10, line 10; and FIGS. 10-11, page 13, line 2 to page 15, line 19 as just a few examples. In particular, FIG. 11, reproduced below, shows how the richness of the air-fuel ratio is selected to decrease with decreased oxygen storage capacity to a greater extent at higher temperatures than lower temperatures. For example, compare the larger change in CO required for decreasing OSC at 500 C with the smaller change in CO required for decreasing OSC at 425 C. Such operation is also illustrated by FIG. 6, which shows how the effect of changing OSC is more prominent above approximately 350 C than below approximately 350C.

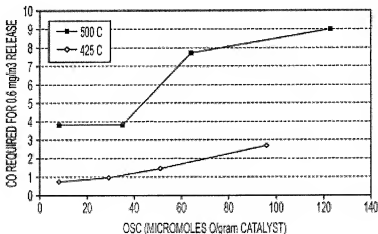


FIG. 11

As such, by selecting the rich air-fuel ratio as a function of at least the oxygen storage capacity of the device and temperature of the device, where the rich air-fuel ratio decreases with decreasing oxygen storage capacity to a greater extent at higher temperatures than lower temperatures, it is possible to better match the supplied reductants of the rich exhaust to the NO_x released during the purge.

Turning now to the cited references, Applicants can find no such disclosure. Rather, as admitted by the Office action, Yonekura et al. fails to consider temperature. Further, with regard to Kakuyama et al., it is immaterial

whether or not it shows estimating OSC based on temperature, since claim 1 specifies instead how the rich air-fuel ratio is decreased differently with OSC depending on the temperature. Finally, Sawada et al. also fails to cure the deficiency of the above references.

Additionally, Applicants incorporate by reference the previous arguments made against the references in the previous response filed November 9, 2007.

Conclusion

Applicants believe that this application is now in condition for allowance, in view of the above amendments and remarks. Accordingly, Applicants respectfully request that the Examiner issue a Notice of Allowability covering the pending claims. If the Examiner has any questions, or if a telephone interview would in any way advance prosecution of the application, please contact the undersigned attorney of record.

Please charge any cost incurred in the filing of this Response, along with any other costs, to Deposit Account No. 06-1510.

Respectfully submitted,

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